

CLAIMS

What is claimed is:

- 1 1. An apparatus for updating a firmware, comprising:
2 a first firmware storage device to store the firmware;
3 a computing unit to perform an update process,
4 a program used by the computing unit to perform the update process;
5 a second firmware storage device to temporarily store at least a portion of
6 the firmware received from the first firmware storage device,
7 wherein the computer unit utilizes the program to
8 a. read out at least a portion of the firmware from the first
9 firmware storage device to the second firmware storage device,
10 b. update the firmware by adding the firmware update to the
11 portion of the firmware contained in the second firmware storage device so as to
12 modify the firmware, and
13 c. write the modified firmware from the second firmware
14 storage device back into the first storage device.
- 1 2. An apparatus as recited in claim 1, wherein:
2 the first firmware storage device comprises a writable non-volatile
3 memory.

1 3. An apparatus as recited in claim 1, wherein:

2 the second firmware storage device comprises at least one of a hard disk, a
3 floppy disk, a random access memory, a magnetic tape, a magnetic storage
4 device, and an optical disk.

1 4. An apparatus as recited in claim 1, wherein:

2 the computing unit comprises at least one of a microprocessor, a digital
3 signal processor, a distributed processor network, a processor connected through
4 the Internet.

1 5. An apparatus as recited in claim 1, wherein:

2 the modified firmware includes a portion that comprises code that
3 determines if the feature has expired.

1 6. An apparatus as recited in claim 5, wherein the code causes the
2 computing unit to:

3 provide for a limited time availability for at least a portion of the updated
4 firmware,

5 determine a present time,

6 determine the availability of at least a portion of the updated firmware by
7 comparing the present time to the limited time availability,

8 terminate availability of at least a portion of the updated firmware when
9 the present time is greater than the limited time availability.

1 7. An apparatus as recited in claim 6, wherein:

2 determining of the availability of at least a portion of the updated
3 firmware by comparing the present time to the limited time ability comprises:

4 reading the present time from a clock from a predetermined source, and
5 comparing the present time to the limited time availability expressed as a
6 real time.

1 8. An apparatus as recited in claim 7, wherein the predetermined source is a
2 real time source.

1 9. An apparatus as recited in claim 7, wherein the predetermined source is
2 an internet time source.

1 10. An apparatus as recited in claim 6, wherein
2 determining of the availability of at least a portion of the updated
3 firmware by comparing the present time to the limited time ability comprises:
4 reading the present time from an elapsed time counter, and
5 comparing the present time to the limited time availability expressed as a
6 total elapsed time.

1 11. An apparatus as recited in claim 6, wherein
2 determining of the availability of at least a portion of the updated
3 firmware by comparing the present time to the limited time ability further
4 comprises:
5 reading the present time from a number of uses counter which counts the
6 number of times a portion of the firmware is used, and
7 comparing the present time to the limited time availability expressed as a
8 total number of uses.

1 12. An apparatus as recited in claim 6, wherein
2 determining of the availability of at least a portion of the updated
3 firmware by comparing the present time to the limited time ability further
4 comprises:
5 reading the present time from a counter which counts the number of times
6 that a system containing the firmware has been booted since the firmware was
7 updated, and
8 comparing the present time to the limited time availability expressed as a
9 total number of times that the system has booted since the firmware was
10 updated.

1 13. A method for updating a first firmware, comprising:

2 reading the first firmware,
3 merging at least a portion of the first firmware with a second firmware to
4 form an updated firmware,
5 writing at least a portion of the updated firmware back to the location
6 from which the first firmware was read.

1 14. A method as in claim 13 wherein merging at least a portion of the first
2 firmware with a second firmware to form an updated firmware comprises:

3 locating a final element of code within the first firmware,
4 storing a portion of the second firmware within the first of firmware to
5 form an updated firmware.

1 15. A method as in claim 14 further comprising:

2 locating a feature table within the firmware,
3 wherein said feature table lists the addresses and functions of code within
4 the firmware,

5 adding an address and function corresponding to at least one feature from
6 the second firmware to the function table.

1 16. A method as in claim 15 wherein the first firmware comprises a basic
2 input/output system (BIOS).

1 17. A method for updating firmware, the method comprising:
2 reading the firmware to be updated,
3 placing the firmware in a shadow RAM,
4 reading a new feature and timing information corresponding to the new
5 feature,
6 determining if the new feature has expired, and
7 writing the new feature into shadow RAM if it has not expired.

1 18. A method as in claim 17 wherein reading a new feature and timing
2 information corresponding to the new feature further comprises:
3 reading data corresponding to the new feature and timing information,
4 and
5 decompressing the data corresponding to the new feature and timing
6 information.

1 19. A method as in claim 17 wherein reading a new feature and timing
2 information corresponding to the new feature further comprises,
3 reading data corresponding to the new feature and timing information,
4 and
5 decrypting the data corresponding to the new feature and timing
6 information.

1 20. A method as in claim 17, wherein determining if the new feature has
2 expired comprises:
3 reading the present time from a real time clock, and
4 comparing the present time to the limited time availability expressed as a
5 real time.

1 21. A method as in claim 17, wherein determining if the new feature has
2 expired comprises:
3 reading the present time from an elapsed time counter, and
4 comparing the present time to the limited time availability expressed as a
5 total elapsed time.

1 22. A method as in claim 17, wherein determining if the new feature has
2 expired comprises:
3 reading the present time from a number of uses counter which counts the
4 number of times a portion of the firmware is used; and
5 comparing the present time to the limited time availability expressed as a
6 total number of uses.

1 23. A method as in claim 17, wherein determining if the new feature has
2 expired comprises:

3 reading the present time from a counter which counts the number of times
4 that a system continuing the firmware has been booted since the firmware was
5 updated; and
6 comparing the present time to the limited time availability expressed as a
7 total number of times that the system has booted since the firmware was
8 updated.

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TOTAL 659,660